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EXAMINER

LE, DANG D

ART UNIT PAPER NUMBER

2834

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/756,420

Applicant(s)

CRONIN ET AL.

Examiner

Dang D. Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/18/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-27 and 29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Cathey (3,531,668).

Regarding claim 1, Cathey shows a cooling system for an electric motor (Figure 1), comprising:

- A cooling duct (Figure 2) formed between a cooling jacket (11) and a separate component surface (circumferential surface of 19), the separate component surface defining at least a portion of a wall of the cooling duct, the cooling duct being configured to direct a cooling liquid along at least a portion of the separate component surface and draw heat from the electric motor, the cooling jacket at least partially defining an operating region (where rotor located) of the electric motor;

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- An inlet port (23) in fluid communication with the cooling duct, the inlet port being configured to receive the cooling liquid to introduce the cooling liquid to the cooling duct; and
- An outlet port (24) in fluid communication with the cooling duct; and
- An end plate (13) adjacent the cooling jacket and having an annular ring (Figure 1) and at least one fluid passage (47) formed therein, the fluid passage being configured to direct cooling liquid from the annular ring (through 42) into the operating region (through 47).

Regarding claim 2, it is noted that Cathey also shows all of the limitations of the claimed invention.

Regarding claim 25, it is noted that Cathey also shows all of the limitations of the claimed invention including the rotor (18), fluid passage (from 42 to 47), end plate (13), and annular ring (formed by 47).

Regarding claims 26 and 27, it is noted that Cathey also shows all of the limitations of the claimed invention including the second ring (12) being in communication (through 31) with the cooling groove.

4. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Rayner (3,217,193).

Regarding claim 11, Rayner shows a cooling system for an electric motor (Figure 1), comprising:

- A cooling duct (38) formed between a cooling jacket (12) and a separate component surface (23), the separate component surface defining at least a

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portion of a wall of the cooling duct, the cooling duct being configured to direct a cooling liquid along at least a portion of the separate component surface and draw heat from the electric motor, the cooling jacket at least partially defining an operating region (16) of the electric motor,

- An inlet port (41) in fluid communication with the cooling duct, the inlet port being configured to receive the cooling liquid to introduce the cooling liquid to the cooling duct;
- An outlet port (49) in fluid communication with the cooling duct,
- At least one passage (42) in communication with the cooling duct, wherein the at least one passage is configured to direct the cooling liquid into the operating region; and
- A deflector (53) within the operating region at the end (43) of the at least one passage, the deflector being configured to deflect the spray of the cooling liquid onto end windings (24) of a stator.

5. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Mela et al. (3,242,418).

Regarding claim 18, Mela et al. shows a cooling system for an electric motor (Figure 1), comprising:

- A cooling jacket (44) having an outer surface with at least one cooling groove (formed by 92) and at least partially defining an operating region (where stator located);

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- An exterior sleeve (30) disposed around the cooling jacket, the exterior sleeve and the cooling groove defining a cooling duct;
- A stator (10) disposed within the operating region, the stator having an outer surface in contact with at least a portion of the inner surface of the cooling jacket (Figure 1); and
- An end plate (30, Figure 2, bottom) adjacent the cooling jacket and having an annular ring and at least one fluid passage (through 52) formed therein, the fluid passage being configured to-direct fluid from the annular ring into the operating region.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 3-10, 12, 18-22, 24, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cathey in view of Mossay (3,009,072).

Regarding claims 3 and 29, Cathey shows all of the limitations of the claimed invention except for the spiral-cooling duct.

Mossay shows the cooling duct could be made either spirally or axially for the purpose of reducing heat.

Since Cathey and Mossay are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the cooling spirally as taught by Mossay for the purpose discussed above.

Regarding claims 4-7, it is noted that Cathey and Mossay also show all of the limitations of the claimed invention.

Regarding claims 8 and 9, it is noted that Cathey also show all of the limitations of the claimed invention including the second annular ring (Figure 1, bottom) being in fluid communication with the cooling duct (through 31).

Regarding claim 10, it is noted that Cathey also show all of the limitations of the claimed invention including the second passage (28).

Regarding claim 12, the claim is similar to claim 1 and 3. As a result, it is also rejected.

Regarding claim 15, it is noted that Cathey and Mossay also show all of the limitations of the claimed invention except for the ratio 2 to 3 and 3 to 2. However, it

would have been obvious to one having ordinary skill in the art at the time the invention was made to make the groove width to land width ratio between a ratio range of 2 to 3 and 3 to 2, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 13, 14, 16, and 17, it is noted that Cathey and Mossay also show all of the limitations of the claimed invention.

Regarding claim 18, the claim is similar to claims 1 and 6. As a result, it is also rejected.

Regarding claims 19-22, it is noted that Cathey and Mossay also show all of the limitations of the claimed invention.

Regarding claim 24, the claim is similar to claim 15. As a result, it is also rejected.

9. Claims 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mossay (3,009,072) in view of Rayner (3,217,193).

Regarding claim 18, Mossay shows all of the limitations of the claimed invention except for the end plate with an annular ring. The end plate (8) of Mossay provides no passage.

Rayner shows the end plate (14) with an annular ring (circumferential portion) and passage (14) for the purpose of cooling the stator end windings.

Since Mossay and Rayner are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the end plate of Rayner for the purpose discussed above.

Regarding claim 23, it is noted that Rayner also shows the deflector (53).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Information on How to Contact USPTO

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (571) 272-2027. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5/27/05

A handwritten signature in black ink, appearing to read "Dangle L. L.", is written in a cursive style.

**DANGLE
PRIMARY EXAMINER**